LEAFLETS
of the Southern California Botanists

Volume 38 • Number 3 • April - September 2025

President's Message

Greetings Southern California Botanists,

We hope your spring and summer were full of botanical adventures. Hopefully one of those botanical adventures was an SCB field trip. We had five amazing outings this year: the Santa Rosa Plateau, Cuyamaca Mountain, Big Bear and Holcomb Valleys, the Colby Trail, and Gypsum Canyon Wilderness. We recently started posting these trips to our Event Brite page which you can access by clicking here.

This is the best way to stay up to date on all our field trips, workshops, and our annual symposium if you are not on social media.

Speaking of our annual symposium, did you see that the registration is now live (link)?! This year's symposium will focus on key mechanisms of plant reproduction: pollination biology and seed dispersal. The title of SCB's 51st Annual Symposium is **Birds, Bees, Flies, and Seeds** and presentations will be split between to the two themes. We have an amazing lineup of speakers, ranging from some local folks doing amazing local things to nationwide experts pushing the fore front of pollinator and seed dispersal research. You do not want to miss it! After the presentations, we will head over to California Botanic Garden for our poster session,

Contents in Brief

- President's Message
- Spring 2025 Botanical Field Trips
- What's in bloom?
- 2025 Symposium
  - Presentation Abstracts & Bios
  - Poster Session: Call for Abstracts

Eriogonum lobbii (Lobb's wild buckwheat)
by Drew Kaiser

mixer, reception catered by Just Vegana Taqueria, aaaand a performance from Southern California's very own plant-based punk rock band, *Sage Against the Machine*! As always, the poster session and mixer are free to all symposium registrants, but if you would like to attend the reception and the show, you must purchase a reception ticket.

Lastly, as part of our ongoing commitment to increase accessibility and participation for diverse communities at SCB sponsored events (see SCB's Diversity and Inclusion Statement) and in recognition of turbulent times in the federal sector, we are happy to offer a limited number of financial hardship awards to this year's symposium. If you would like to attend this year's symposium, but the cost is a barrier to your participation, please submit a Statement of Need (150-word limit) to membership@socalbot.org by 11:59pm September 21. We will let you know if you have been awarded by September 28.

We hope to see you all there!

Drew Kaiser
2024-2025 SCB President

Spring 2025 Botanical Field Trips

Southern California Botanists hosted a series of spring field trips that highlighted the region's remarkable plant diversity.

Group photo from the Big Bear and Holcomb Valley field trip.

The season began **April 19** with **Ricardo Montijo** on the **Colby Trail in Glendora**, where participants explored shady oak
woodlands, chaparral, and volcanic grasslands supporting rare species like thread-leaved brodiaea (*Brodiaea filifolia*), along with common goldenstar (*Bloomeria crocea*), blue dicks (*Dipterostemon capitatus*), and Matilija poppy (*Romneya coulteri*).

On **May 3**, **Justin Wood** led a day-long tour of **Big Bear and Holcomb Valleys**, showcasing pebble plains, limestone and fragrant sumac (*Rhus aromatica*). This was a field trip led by the California native plant Society, Orange County chapter, and we appreciate the opportunity to cross advertise to our Southern California Botanist members.

The following day, **May 4**, **Fred Roberts** and **Mel Letterman** guided an exploration of

Justin Wood teaching during the Big Bear and Holcomb Valley field trip.
by Diana Brand Ramirez

the new **Gypsum Canyon Wilderness** in Orange County. Attendees hiked through oak woodlands, coastal sage, and chaparral recovering from wildfire, encountering chaparral nolina (*Nolina cismontana*), many-stemmed dudleya (*Dudleya multicaulis*), and fragrant sumac (*Rhus aromatica*). This was a field trip led by the California native plant Society, Orange County chapter, and we appreciate the opportunity to cross advertise to our Southern California Botanist members.

Also on **May 4**, **Tom Oberbauer** led a trip through **Cuyamaca Rancho State Park** in San Diego County. The group visited wet meadows near Cuyamaca Lake, recovering forests on Cuyamaca Peak, and extensive thickets of ceanothus (*Ceanothus palmeri*) and Parish's goldenbush (*Ericameria parishii*) shaped by the Cedar Fire, as well as a range of mountain conifers and chaparral species.

The series concluded **June 7** at the **Santa Rosa Plateau Ecological Reserve** with **Gabe Elliott**. Participants explored oak woodlands, coastal sage scrub, native grasslands, and vernal pools harboring rare species such as rainbow manzanita (*Arctostaphylos rainbowensis*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), thread-leaved brodiaea (*Brodiaea filifolia*), and California Orcutt grass (*Orcuttia californica*).

It was a rewarding field trip season that offered members the chance to experience Southern California's botanical richness firsthand and meet new friend who share interests in plant science. We thank all the field trip leaders for volunteering their time!

Group photo from the Cuyamaca Rancho State Park field trip.

Gabe Elliot teaching during the Santa Rosa Plateau Ecological Reserve field trip.
By Diana Brand Ramirez

Salvia dorrii (Dorr's sage)
by Diana Brand Ramirez

Group photo during the Santa Rosa Plateau Ecological Reserve field trip.

Erythranthe purpurea (little purple monkeyflower)
By Diana Brand Ramirez

Ricardo Montijo teaching during the Colby Trail in Glendora field trip.

What's in Bloom?

Showcasing the beauty of California's native flora.

Zeltnera venusta (California Centaury)
Gentianaceae
San Bernadino National Forest, August 2025
Photo Credit: Duncan Bell

Southern California Botanists 51st Annual SCB Symposium - Bees, Flies, and Seeds: Pollination Biology and Seed Dispersal

Date: Saturday November 1, 2025

Parking: Parking is free. Seaver North Auditorium is located on North College Avenue between 6th and 7th streets. Please use street parking on N. College, 6th or 7th.

Location: Pomona College, Seaver Auditorium. 645 N College Ave, Claremont, CA 91711

Presentation Abstracts and Speaker Bios

Pollinator Shifts and Invasive Species: Implications for the Reproductive Ecology of the Endangered *Chloropyron maritimum* subsp. *maritimum*

Sarah Cusser, **Ph.D.,** Terrestrial Invertebrate Conservation Ecologist, Santa Barbara Botanic Garden

Chloropyron maritimum subsp. *maritimum* (salt marsh bird's beak) is a federally listed endangered annual native to southern California's coastal salt marshes. Its persistence may depend on insect pollination, yet both pollinator availability and habitat quality are threatened by invasive species and long-term ecological change. We present results from two complementary studies examining the plant's reproductive ecology across two coastal marshes. At Naval Base Ventura County, we repeated a 1984 pollinator survey after 33 years and found similar pollinator abundance and richness, but a striking shift in community composition, pollinators in 2017 had significantly smaller body sizes, which may influence pollination effectiveness and seed set.

At Carpinteria Salt Marsh, we investigated the influence of the invasive *Limonium duriusculum* on *C. maritimum* pollination using observational surveys, network analysis, and a small-scale removal experiment. We found *C. maritimum* was visited only by native bees, and visitation rates were low. In contrast, *L. duriusculum* attracted

abundant non-native insects (*Apis mellifera* and *Eristalinus aeneus*), which did not visit *C. maritimum*. While removal of *L. duriusculum* did not increase visitation to *C. maritimum*, it improved pollination network structure, increasing nestedness and specialization. These findings highlight how shifts in pollinator identity and invasive plant presence can subtly but meaningfully affect rare plant ecology. Ongoing conservation of *Chloropyron maritimum* subsp. *maritimum* will benefit from managing invasive species and enhancing habitat conditions to support native pollinator communities in southern California's coastal wetlands.

Early registration (ends October 19): $80
On-site registration: $95
Student early registration (ends October 19): $30
Student on-site registration: $35
Meal Service Add-On: $25

Sarah Cusser, Ph.D. is a terrestrial invertebrate conservation ecologist at the Santa Barbara Botanic Garden, where she focuses on understanding, conserving, and restoring insect communities and the vital ecosystem services they support across natural, agricultural, and urban landscapes. Her work integrates research and restoration to enhance biodiversity and ecosystem function.

Sarah has studied pollination and decomposition services in diverse regions, including Texas, Michigan, New Jersey, and Pennsylvania, and has contributed to habitat restoration projects in California, Vermont, and Ohio. She earned her Ph.D. in Ecology, Evolution, and Behavior from the University of Texas at Austin, her M.S. in Evolution, Ecology, and Organismal Biology from The Ohio State University, and a B.A. in Biology from Pomona College.

Research interests: landscape ecology, restoration ecology, insect conservation

US Geological Survey Bee Lab
Sam Droege, Wildlife Biologist, USGS Eastern Ecological Science Center

Abstract & bio available soon at https://socalbot.org/symposia/

How Plants Fly
Dwight Whitaker, Ph.D., Professor of Earth Sciences, University of Southern California.

Without the ability to move, plants have evolved to have a number of novel mechanisms to disperse seeds and spores over considerable distances. Using highspeed video analysis and computer modeling, our group studies the aerodynamics of propagules traveling through the air. In this talk, I will present how

using gyroscopic stabilization to reduce drag in the flight of seeds of *Ruellia ciliatiflora* and *Hura crepitans* has convergently evolved to enhance the dispersal distance of ballistically launched seeds. I will also present results from our work on the unique dispersal of Sphagnum moss, which launches its spores with vortex rings to carry the dust-like spores to a height where they can be carried by the wind. Dwight Whitaker is a Professor of Physics at Pomona College. He received his PhD from Brown University and did his post-doc at JILA in Boulder Colorado studying Bose-Einstein condensation. More recently, Dwight has shifted his research focus to study the biomechanics of seed and spore dispersal with a focus on the aerodynamics of propagules in flight.

Effects of super-abundant non-native honey bees on plants and pollinators in a biodiversity hotspot

Joshua Kohn, Ph.D., Emeritus Professor in Department of Ecology, Behavior, and Evolution, University of California San Diego

Feral, non-native, honey bees make up 84% of all floral visitors to native plants in western San Diego County. This is worrying given the county is home to the largest number of plant taxa (2400) of any county in the USA and is also home to >700 species of native bees. For three common native plants (*Salvia apiana, S. mellifera,* and *Phacelia distans*) we showed that, because honey bees forage methodically, moving from one flower to another on the same plant over and over before moving to another plant, the flowers they pollinate are primarily self-fertilized which can lead to large loss of fitness through inbreeding depression. Offspring resulting from pollination from native insects, which visit fewer flowers per plant before moving on, are 2 to 5 times more fit than those resulting from honey bee pollination, as measured in greenhouse studies of germination, survival, growth and flower production. To examine the potential for resource competition between honey bees and native bees, we estimated that ratio of honey bee biomass to the biomass of all native bees in the community is currently 50:1. If food limits native bee populations and if resources currently used to make honey bees were instead used by native bees, we might expect a 50-fold rise in native bee populations. We also found that honey bees remove approximately 80% of the pollen from each of the plant species mentioned above on the first day that flowers open. Using literature estimates of the amount of pollen needed to provision offspring of bees of different sizes, we estimate that the pollen removed from these plants is enough to provision dozens to thousands of native bees per hectare per day. Despite that the public views honey bees as helpful, they may have negative effects on natural systems similar to other invasive species.

Dr. Joshua Kohn recently retired after 32 years as a professor in the Department of Ecology, Behavior, and Evolution at UC San Diego. His research areas include plant mating system evolution, pollination ecology, and the evolution of floral traits. Before

becoming a professor, he worked in the kitchen of Chez Panisse with Jeremiah Tower and Alice Waters, graduated from Reed College, studied high Sierra bird communities and the foraging ecology of endangered Hawaiian honeycreepers. Being a sub-par birder drove him to botany and graduate work at the University of Pennsylvania. He has published scientific papers on the evolution of separate sexes from hermaphroditism, drivers of the evolution of self-fertilization from outcrossing, and the evolution and consequences of self-incompatibility whereby plants recognize and reject their own pollen in favor of mating with others. His lab began studying non-native honey bees locally because they are overwhelmingly the most frequent visitors to native plants in our area.

The Underdog(fly) of the I.E.
Michael Viramontes, Stewardship Manager, River & Lands Conservancy

The Inland Empire is home to an often overlooked federally endangered pollinator. The Delhi Sands flower-loving fly (*Rhaphiomidas terminatus* abdominalis) is an uncharismatic underdog, and the first fly added to the endangered species list. It can only live in a rare habitat called the Delhi sand dunes, a dwindling dynamic community of native plants and pollinators. This presentation highlights Rivers & Lands Conservancy's efforts to conserve and restore this habitat while also attempting to educate and build support for its unloved mascot.

Michael Viramontes found his love for native plant restoration during his time at San Jose State University while completing a Bachelor of Science in Environmental Studies. After working for 10 years in non-profit conservation and environmental education in both the San Francisco Bay Area and in Southern California, Michael is currently the Stewardship Manager at Rivers & Lands Conservancy, based in Riverside, CA. Michael devotes much of his time and energy at Rivers & Lands Conservancy figuring out how to protect and restore habitat for an endangered sandfly.

Seed dispersal in the limestone endemic monkeyflowers
James Sobel, Ph.D., Associate Professor and Chair of the Department of Biological Sciences, Binghamton University (SUNY)

Although adaptation to different habitats is often considered an important first step in the process of speciation, not all forms of reproductive isolation that result are carefully considered in the literature. Indeed, edaphic endemics often experience sharp boundaries between habitats, and local adaptation can therefore produce the kind of discontinuous result that we often associate with divergence between species. However, traits like flowering time, floral morphology, pollen/pistil interactions, and intrinsic crossing barriers are more often characterized than the traits directly involved in habitat isolation. For example, species that colonize rock crevices often exhibit

specialized traits, such as reduced dispersal, that are not found in other nearby habitats. The limestone endemic monkeyflowers exhibit several interesting examples of reduced dispersability, often involving a shift in phototropic responses. In this talk, I will describe the diversity of monkeyflower species exhibiting this unique trait, discuss implications for reproductive isolation between diverging lineages, show some results from genetic analyses, and provide some future directions that these charismatic species can provide.

James Sobel is an Associate Professor and Chair of the Department of Biological Sciences at Binghamton University (SUNY). Jay earned my PhD in Plant Biology and EEBB at Michigan State University back in 2010 with Doug Schemske, and then spent 3 years at the University of Oregon with Matt Streisfeld for my postdoctoral work. Jay is an integrative evolutionary biologist and focuses his studies on the earliest stages of speciation across the wide diversity of species in the monkeyflower system.

Ecology and Conservation of the El Segundo Blue Butterfly

Julie Simonsen, Fish & Wildlife Biologist, United State Fish & Wildlife Service

The federally endangered El Segundo Blue butterfly (*Euphilotes allyni*) is a narrow coastal dune endemic that has evolved a highly specialized relationship with its obligate host plant, sea cliff buckwheat (*Eriogonum parvifolium*). The butterfly depends on this plant for all life stages—shelter, foraging, and reproduction—making it particularly vulnerable to habitat loss and degradation. Historically, E. allyni occupied a broader range, but its distribution has contracted significantly due to these pressures. Conservation efforts have therefore focused on restoring and enhancing populations of sea cliff buckwheat. However, the butterfly's current distribution does not fully align with that of its host plant, suggesting that additional habitat requirements remain poorly understood. In recent years, collaborative restoration initiatives have successfully reestablished sea cliff buckwheat in key areas, leading to range expansion and new butterfly occurrences that mark significant progress toward species recovery.

Julie Simonsen is an ecologist and conservation biologist with over 30 years of experience working in Southern California, specializing in plant ecology, insect-plant interactions, and habitat restoration. Her academic background includes graduate research in entomology and the development of large-scale, multi-species monitoring programs. As a Fish & Wildlife Biologist with the U.S. Fish & Wildlife Service, Julie integrates the best available science to assess the status of sensitive and at-risk species. She collaborates closely with researchers, government agencies, and non-profit organizations to advance the recovery of threatened and endangered species. Her recent work has focused on designing conservation strategies for long-lived clonal plant species, addressing the unique challenges they present for long-term

Scatter-hoarding rodents, *Arctostaphylos*, dispersal dynamics, and the path to evolutionary innovation

Tom Parker, Ph.D., Emeritus Professor of Biology, San Francisco State University, Editor-in Chief, Madroño

Arctostaphylos (manzanitas) has over a hundred different taxa. In contrast to the other members of the Ericaceous subfamily Arbutoideae, *Arctostaphylos* presents dormant seed, persistent seed banks, and obligate seeding species, among other traits. Scatterhoarding rodents are likely one of the stimuli to that diversification. This talk will focus on that hypothesis, starting with research that establishes seed banks resulting from rodent caching of fruit, and the implications of that for taxa living in arid, canopy fire regions. Because soil seed banks are so critical to the success of this genus, I develop a model of seed bank dynamics, and the role rodents play in managing them. Consequently, there are not only evolutionary implications, but insights for those managing chaparral with *Arctostaphylos* species.

Tom Parker is an evolutionary plant ecologist focusing on community and evolutionary ecology, with a focus on chaparral and tidal wetlands; evolutionary ecology of *Arctostaphylos* (Ericaceae) and Ceanothus (Rhamnaceae); public engagement on ecological/conservation issues. He stumbled into the systematics and ecology of *Arctostaphylos* species and has focused much of his research on that group (co-author of treatments for Flora of North America [2009] and Jepson Manual: Higher Plants of California [2012]). Research on dispersal, seed banks, seedling establishment, mycorrhizae, and other aspects of ecology and evolution in a variety of California vegetation types, especially chaparral and tidal wetlands. Over 100 peer-reviewed articles and book chapters; 3 edited books, 1 co-authored Field Guide to Manzanitas. Currently Editor-in-Chief of Madroño. B.A., University of Texas, Austin; M.A., Ph.D., University of California, Santa Barbara.

Link to Field Guide to Manzanitas, 2nd Edition: https://backcountrypress.com/book/field-guide-to-manzanitas/

The ABCs of California Native Bees

Krystle Hickman, National Geographic Explorer and Community Scientist

There are nearly 3,000 bee species native to western North America, and over 1,600 of them reside in California—one of the most biodiverse regions in the world for bees. Native bees—as distinct from honey bees—are at risk of extinction due to climate change and habitat loss. They may be native to an area as small as a zip code or as large as an entire nation, though wherever they reside, they are integral to their surrounding ecosystems. The number of species native to California dwarfs the variety to be found in whole countries, such as France or Argentina, and rivals the

the biodiversity of the entire continent of Australia. This natural abundance of bees makes the Golden State significant terrain for entomologists. And since bees are an indicator species— whose absence or decline in population are often a first signal of ecosystem collapse— the study of bees is significant terrain for environmentalists writ large. In this talk, National Geographic Explorer and bee expert Krystle Hickman profiles a handful of the species that underpin the ecologies of the Golden State, exploring the reciprocal connections between distinct species and native plant life, and how community science can support their conservation.

Krystle Hickman is a National Geographic Explorer and community scientist based in Los Angeles and the author of The ABCs of California's Native Bees. With a passion for nature and an eye for artful photography, Hickman strives to elevate awareness of the decline of native bee species and shed light on their intricate and biodiverse ecosystems. Hickman's commitment to conservation takes her across the globe, documenting rare native bees without resorting to any form of lethal collecting. Hickman's influence extends beyond the lens: She has graced multiple television and online broadcasts, been interviewed on podcasts such as Ologies, presented at the 2024 United Nations Biodiversity Conference (COP16) in Colombia, and lectured at colleges such as Harvard, UC Irvine, UCLA, and more. Learn more about her work at beesip.com.

Symposium Schedule:

8:00-9:00 am **Registration**
9:00-9:10 am **Annual SCB Business Meeting and Opening Remarks**
9:10-4:45 pm **Presentations**
Evening events continue at California Botanic Garden
Location: 1500 N College Avenue, Claremont CA 91711
5:00-6:30 pm **Mixer**: California Courtyard, California Botanic Garden
5:30-6:30 pm **Poster Session**: Sycamore Room, California Botanic Garden
6:30-8:00 pm **Dinner Service**: Just Vegana Catering (*reception ticket required*)
7:30-8:30 pm **Sage Against the Machine**: California Courtyard (*reception ticket required*)

Registration Link | **Program**

Poster Session: Call for Abstracts

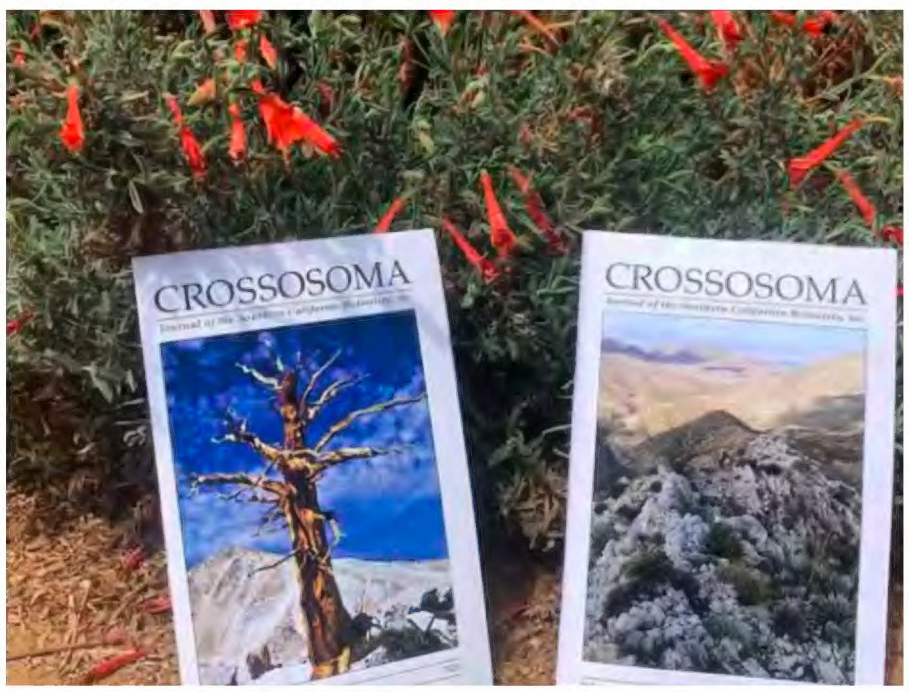
If you are interested in sharing your research or know of students who would like to share with a friendly, enthusiastic, crowd we're putting out a call for poster abstracts! Abstracts are due **September 30, 2025** and must be submitted electronically to posters (at) socalbot.org. Please include all authors, author affiliations, and poster title in the body of the email. Limit abstracts to 250 words, and please indicate if the poster presenter is a student. Submitters will be notified by October 6, 2025 if their poster has been accepted. Please do not submit abstracts for posters that have been previously displayed at a SCB symposium. A free 1-year SCB membership will be awarded to the student with the best poster. Additionally, student poster presentations qualify for free symposium registration.

Got Milkweed? Modeling Asclepias Species Distributions Using Herbarium Records
Monitoring the soil seed bank of Gaviota tarplant (Deinandra increscens ssp. villosa)
SDSU

Crossosoma: Call for Manuscripts!

We need your content! Crossosoma serves as the esteemed scientific journal of the Southern California Botanists. We invite contributions that illuminate the flora of Southern California and its adjacent, floristically intertwined realms. We seek subject matter such as ecological, taxonomic, floristic, or horticultural studies of both vascular and non-vascular plants, as well as informal notes, observations, and opinion pieces.

If you are interested in submitting content or are uncertain about the suitability, please inquire with the editors (editor (at) socalbot.org) and visit our website (https://socalbot.org/crossosoma/) for more information.



Native Plant Gardens

- California Botanic Garden, calbg.org
- Fullerton Arboretum, at CSU Fullerton, fullertonarboretum.org
- Los Angeles County Arboretum and Botanic Garden, tinyurl.com/hahpacyd
- Native Garden at Golden West College, tinyurl.com/ymfrke3z
- Nature Gardens at Natural History Museum of L.A. Co., tinyurl.com/47th7nfz
- San Diego Botanic Garden, sdbg.org
- Santa Barbara Botanic Garden, sbbotanicgarden.org
- UCLA Mildred E. Mathias Botanical Garden, botgard.ucla.edu

Do you have something to contribute to *Leaflets*?

We like short informal articles, notes, sketches, & photographs. Send email to the Editor: ninahouse@berkeley.edu

To submit scientific articles for publication in *Crossosoma*, send email to editor@socalbot.org

SCB Grants Program

For more information on the SCB grant program, visit socalbot.org/grants or inquire at grants@socalbot.org

Please donate to the SCB Grants Program and help fund these wonderful grants: paypal.me/socalbot?locale.x=en_US

* SCB Annual Grant
* Susan Hobbs Grant for Field Research
* Alan Romspert Grant in Desert Botany
* Jessica Mae Orozco Diversity Grant
* SCB Conservation Grant

Membership

Join SCB or renew your existing membership online via PayPal at: socalbot.org